

STATE OF CALIFORNIA

IBLA 70-150

Decided November 24, 1972

Recommended decision of Administrative Law Judge L. K. Luoma to reject application LA 0164001, filed by the State of California under the Swamp Land Act.

Adopted as modified, application rejected.

Swamplands

The burden of proof as to character of lands applied for under the Swamp Land Act falls upon the applicant State.

Swamplands

Land not in esse within the State of California on September 28, 1850, is not subject to application by the State of California under the Swamp Land Act.

Swamplands

Land subject to periodic overflow of a temporary nature is not "swamp and overflowed land" within the meaning of the Swamp Land Act.

APPEARANCES: Evelle J. Younger, Esq., Attorney General, Paul M. Joseph, Esq., Deputy Attorney General, State of California, Sacramento, for the appellant; Foster Buckner, Esq., George H. Wheatley, Esq., Office of the Solicitor, U.S. Department of the Interior, Los Angeles, for the respondent Bureau of Land Management; Raymond C. Simpson, Esq., Long Beach, California, for the intervenor Fort Mojave Tribe of Indians.

OPINION BY MR. HENRIQUES

This proceeding arises out of an application filed by the State of California on April 27, 1959, to select certain lands as swamp and overflowed under the Acts of September 28, 1850, 43 U.S.C. §§ 982-984 (1970), and July 23, 1866, as amended, 43 U.S.C. § 987 (1970). The Department referred the matter to an Administrative

Law Judge 1/ with instructions to conduct a hearing on these two specific questions:

1. Was the land involved here in esse in the State of California on September 28, 1850?
2. Was the land swamp and overflowed, as contemplated by the Swamp Land Act, on the date of the Act?

and thereafter to submit a recommended decision.

Attached hereto as Appendix A is a copy of the Judge's recommended decision, which sets forth correctly and in succinct manner the background and pertinent law, his findings and conclusions, and his recommendation that the State's application be rejected. With minor modifications as hereinafter set forth, we accept his decision, with an exception to be discussed later.

Authority of the Secretary of the Interior in appellate matters relating to use and disposition of the public lands was given to the Interior Board of Land Appeals, effective July 1, 1970. 211 DM 13.5; 35 F.R. 12081. Pursuant to this authority, this board has assumed jurisdiction over this case.

Following receipt of the Judge's recommended decision, the State of California submitted a brief in support of its argument that the Judge erred in finding that the subject lands were not in esse in California on September 28, 1850, and that his conclusions lacked precision on the question whether the subject lands were or were not swamp and overflowed lands as contemplated by the Act. The State contends that placing the Colorado River "near" the western bluffs of Mojave Valley does not foreclose the right of the State to every legal subdivision the greater part of which is wet and unfit for cultivation. The State also asserts that the Judge misunderstood or misapplied the testimony and evidence.

The burden of proof as to character of land applied for under the Swamp Land Act falls upon the applicant State, in this case California. But first it must be determined that the lands in question were within California on the date of the Act.

The subject lands are situated within the relatively level broad flood plain of the Colorado River in Mojave Valley. Because

1/ By order of the Civil Service Commission, the title "Administrative Law Judge" has replaced that of "Hearing Examiner." 37 F.R. 16787 (August 19, 1972).

of the nature of the stream flow of the Colorado before being restricted by Hoover Dam in 1935, the spring run-off caused sheet flooding over much of the flood plain in Mojave Valley on a more or less annual cycle, with consequent aggradation of the plain and a post-flood stream course in somewhat different position from that occupied by the river prior to the flooding. In years of drought no flooding occurred. Ex. CA.4 p. 73. Following winters of heavier than usual snowfall in the headwaters of the Colorado, the spring floods were of unusual force. Such a flood in 1884 washed out the railroad bridge at Needles, a short distance below the subject land, and very probably altered materially the former stream course through the Mojave Valley. There is evidence from the aerial photographs of the Mojave Valley indicating that the main stream of the Colorado has vibrated from bluff to bluff over the entire flood plain. Most of the qualified witnesses agreed to this fact. When California became a state in 1850, its eastern boundary from 35° North latitude to the international boundary with Mexico was the center thread of the Colorado River.

The first question, therefore, is: where was the main stream of the Colorado River on September 28, 1850, the date of enactment of the Swamp Land Act?

As no direct evidence as to the location of the Colorado River as of 1850 was presented at the hearings, it is necessary to rely primarily on the early maps of the area and the field notes of early surveys run by the General Land Office, affording to each the weight that its apparent accuracy supports. In the determination of location as of 1850, very little weight may be given to maps made after 1884, the year of the major flood, as there is no probative evidence that the Colorado River thereafter was in the same general course as it had followed in 1850.

Several maps of the Colorado River through the Mojave Valley area were introduced into evidence, but none of which was made prior to September 28, 1850. The earliest map introduced shows the results of a military reconnaissance by Captain L. Sitgreaves, U.S. Army Engineers, in 1851. This map was not oriented sufficiently to give a precise location to the Colorado, either longitudinally or in relation to the local topography. Its purpose was to show the general route of the journey of Sitgreaves overland and to ascertain sites for military camps to protect against Indian maraudings. Sitgreaves' route through Mojave Valley was close to the eastern edge of the flood plain near the foot of the Arizona bluffs. Ex. 7, p. 41. His map depicts the Colorado River against the California bluffs for most of the distance through Mojave Valley.

The first geographically accurate location of the Colorado River in the Mojave Valley vis-a-vis the California bluffs was made by

Henry Washington, cadastral surveyor for the General Land Office, in 1855, when he extended the 2d Standard Parallel North from the San Bernardino Meridian eastward to the Colorado River. In running the 2d Standard Parallel in T. 11 N., R. 21 E., Washington was compelled to offset from the township line because of rugged terrain. From Washington's field notes, George Johnson, retired BLM cadastral engineer, retraced Washington's line from the southwest township corner of T. 11 N., R. 21 E., and ascertained that Washington came to the right bank of the Colorado River in what is now E 1/2 NW 1/4, sec. 15, T. 10 N., R. 22 E., and the bank of the river at that time was approximately 5 chains east of the bluffs on the west side of the Mojave Valley. Johnson testified that he had located both the natural and artificial monuments recited in Washington's field notes during his running of the retracement line.

Washington's field notes indicate that he ran his line north, after reaching the Colorado on the offset line, and established a meander corner of the 2d Standard Parallel at a point 4 miles, 51 chains east of the township corner between T. 11 N. Rs. 21, 22 E., at which terminus Washington stated he was on the right bank of the Colorado River at high water, and on top of a bluff about 20 feet high, being the margin of a swamp and the foot of rugged hills. This point likewise was reached by Johnson in his retracement. Johnson testified that a relatively consistent error had been discovered in Washington's reported distances along the 2d Standard Parallel during retracement of the line in recent years with attendant recovery of the original Washington corner monuments through Ts. 16-20 E. It was discovered that Washington's recorded distances had to be extended by a factor of 1.055 because of a faulty chain employed by him, so that the location of his meander corner at the eastern end of the 2d Standard Parallel was approximately 5 miles, 7 chains east of the township corner between Rs. 21, 22 E. As measured on a current Geological Survey topographic quadrangle map, we compute this point to be at the approximate longitude, 114° 40' W.

A survey of the Colorado River was undertaken by Lt. Joseph C. Ives in 1858 to determine the practicability of navigation upstream from the Gulf of California. Ives made astronomical observations as well as measurements of distance. The graphic depiction of his work was placed on a drawing by his cartographer, Egloffstein.

The Ives 1858 map shows the Colorado to be close to the western bluffs in the vicinity of the selected lands. Testimony was given at the hearings that Ives was in error about 1 minute 15 seconds in his recorded longitudes.

In his report, Ives stated his Camp 45 (near the subject lands) to be at 34° 58' 44.5" N., and 114° 38' 18.0" W. Applying the longitudinal

correction above mentioned, the Administrative Law Judge located Camp 45 at 34° 58' 44.5" N., 114° 39' 33" W., within what is now the W 1/2 NW 1/4 section 11, T. 10 N., R. 22 E., S.B.M.

In this connection, we take official notice of the field notes of the Ives Survey reposing in the National Archives, and find in Field Book 7, Hydrography, statements relative to the meander corner set by Henry Washington at the terminus of the 2d Standard Parallel.

At Station 991: "about 3 1/2 chains south of this station a meander corner of the U.S. Public Land Surveys was found on the right bluff bank. It is supposed to be the meander post on 2nd Standard Parallel North, San Bernardino Meridian. * *
* in a mound of stone in a dry wash about 2 chains from the river."

At Station 1000: "made Camp No. 45. * * * We camped S 80° E. about 12 chains from the meander point on 2nd North."

From the positive locations of the river by Washington and Ives, there is no doubt that the Colorado was very close to the western bluffs of the Mojave Valley in 1855 and 1858, and commentaries on the Sitgreaves map of 1851 likewise indicated that the river was near the western bluffs.

Cadastral survey of the south half of T. 10 N., R. 22 E., by Baker in 1883 showed that the Colorado ran westerly and northerly through sections 26 and 22, on a course which would project to the approximate location of the river as reported by Washington in section 15 and compatible with that shown in Ives in 1858.

Testimony and evidence at the hearings indicated that the Colorado flooded with unusual vehemence in 1862 and 1884. Maps of the Mojave Valley made after 1884 show the Colorado flowing as a meandering braided stream generally within a mile of the presently accepted state boundary between California and Arizona, and substantially east of the selected lands. With the closing of Hoover Dam in 1935, the Colorado has been more or less stabilized in a channel through Mojave Valley.

Examination of the current topographic maps of the Geological Survey shows an intermittent drainage course running southerly at the base of the bluffs on the western side of Mojave Valley, through the selected lands. It appears to be along the course of the Colorado as reported by Henry Washington.

Various maps of Mojave Valley since 1884 have shown sometimes an ephemeral "Lake Tapio" over a large portion of the selected lands, other

times a slough, and sometimes no indication of any water at all. We do not consider these maps to be indicative of the position of the Colorado River in 1850.

Uncontradicted testimony at the hearing indicated that a considerable amount of aggradation had occurred in the Mojave Valley from flood-stage overflow of the Colorado which deposited silt as it lost velocity. Estimates of the deposition ranged up to 40 feet during the period between 1850 and 1935. The present river course has developed natural levees, and is slightly higher in elevation than much of the adjacent flood plain, including the selected lands.

Considerable testimony was elicited at the hearing on hydrologic theory and the behavior of the Colorado in relation to the prominent headland at Fort Mojave north of the selected land at the top of Mojave Valley on the east side of the river and another prominent headland at Paiute Wash, south of the selected land and on the west side of the river. We are of the opinion that none of the theory expressed by the State's witnesses overcomes the positive expression of location of the Colorado on the maps of Washington, Ives and Baker, that is, that the Colorado was flowing very close to the western bluffs of Mojave Valley in 1855, 1858 and 1883, and with little change in river location at the north end of the selected lands between 1855 and 1858.

As the evidence introduced by the State of California to support its argument was not persuasive, we find that the right bank of the Colorado River was from 2 to 5 chains east of the western bluffs of Mojave Valley in 1850, running through what is now lot 3, section 3, W 1/2 NE 1/4, E 1/2 SW 1/4, NW 1/4 SE 1/4, section 10, SW 1/4 NE 1/4, E 1/2 NW 1/4, NE 1/4 SW 1/4, W 1/2 SE 1/4, section 15, lots, 1, 2, 3, 4, 5, SW 1/4 NE 1/4 section 22, NE 1/4 NE 1/4 section 27, T. 10 N., R. 22 E. We agree with the Judge's finding that most of the selected land was either in the bed of the Colorado River or east of the left bank of the river in 1850, and therefore was not then in esse in California.

Our finding that most of the subject land was not in esse in California on September 28, 1850, tends to moot the question of the physical character of the land lying east of the Colorado River at that time. Nevertheless, we recognize, as did the Judge, a close linkage of the issue of the character of the land with the question of the position of the river. Accordingly, we make a factual finding as to the physical character of all the subject land without respect to the determination that its situs was not in esse in California on September 28, 1850. Cf. Work v. United States, ex rel. O'Donnell, 23 F.2d 136 (D.C.Cir. 1927).

We expand on the Judge's findings numbers 1 and 2 to set forth more precisely the position of the Colorado River and the subject lands which were partially in esse in California on September 28, 1850.

As to the Judge's findings concerning the periodic overflow of the subject lands, while we agree with finding number 4 to the extent that during the historic period when the channel of the Colorado River was east of the subject lands, such lands were overflowed by the flood waters of the river during the months of May and June of all normal years, we limit the period of flooding with the closing of Hoover Dam in 1935. When the course of the river was west of most of the subject lands, as in 1850, there is no direct or positive evidence concerning overflow. However, inferentially from other evidence in the record, we conclude that any overflow of lands either west or east of the river would only have been during the usual months when periodic flooding occurred. We do not agree with the Judge's finding number 6 that such "overflow, uncontrolled by artificial reclamation, would have rendered the lands unfit for cultivation for Caucasian-type agriculture, as contemplated by the Swamp Land Act." This finding is contradicted in finding number 7, where he concluded that on September 28, 1850, the subject lands were not swamp and overflowed as contemplated by the Swamp Land Act, basing this last finding upon the position of the main channel of the Colorado River at that time.

In discussing the legal standards of what constitutes "overflowed" lands within the meaning of the Swamp Lands Act, the Judge discussed cases which emphasized the need for artificial improvements in the way of levees or embankments to keep out water, and drainage and other reclamation of the land to make it suitable for cultivation as requisites for determining that land is "overflowed" in character. Nevertheless, he did not correctly apply these standards in this case. He makes some distinction between traditional Indian tribal agricultural practices conducted on the land whereby crops were planted following the periodical flooding of the lands, and "Caucasian-type" of agriculture. We see no distinction in the application of the standard. The evidence supports a finding that the lands could be cultivated without the need for levees or embankments, that the flooding was periodical and only temporary in nature, that there was no need for artificial drainage and reclamation of the land after the flooding subsided each year. In short, there was no permanent overflow of the lands as emphasized in Heath v. Wallace, 138 U.S. 573 (1891), quoted in the Judge's decision attached, which would require reclamation or drainage. The court's opinion in Heath v. Wallace, makes clear that lands subject only to periodic overflows of a temporary nature are not "overflowed"

within the meaning of the Swamp Land Act. All of the subject lands not within the river bed in 1850 fall within the periodical overflow standard of Heath v. Wallace.

The State has contended that because lands north and south of the subject lands have been patented to the State under the Swamp Land Acts, that these lands must be of the same character. We do not agree. The record established in this case is the basis for our findings with respect to this land. The evidence presented contradicts any inference arising from the fact other lands have been patented. It is unnecessary to discuss this and other contentions made by the State further as we find them to be without merit or irrelevant to the basic determinations made here.

We summarize our findings on the issues presented for determination at the hearing as follows:

1. On September 28, 1850, the main channel of the Colorado River occupied a position from 2 to 5 chains east of the base of the bluffs at the western side of Mojave Valley, and west of most of the subject lands.

2. On September 28, 1850, most of the subject land was not in esse in the State of California. The only subdivisions named in the State's application which extended west of the right bank of the Colorado River, and so in esse in California were lot 1 section 3, W 1/2 NE 1/4 section 10, and lots 2, 3, 4 section 22. All other subdivisions named in the application were either in the bed of the river or east of the left bank thereof.

3. On September 28, 1850, none of the subject land, either east or west of the Colorado River as it ran at that time, was swampy in physical character within the meaning of the Swamp Land Act.

4. On September 28, 1850, and during historical time both before 1850 and since then until closing of Hoover Dam in 1935, the subject lands which were west or east of the Colorado River were subject to periodic overflow by flood waters of the river during the months of May and June of all years except those of severe drought. As an aftermath of the annual periodic flooding, the subsequent course of the Colorado River has vibrated across the entire Mojave Valley. Periodic flooding of a temporary nature did not render the lands "overflowed" in physical character within the meaning of the Swamp Land Act.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the interior, 43 CFR 4.1, the application LA 0164001 by the State of California is rejected.

Douglas E. Henriques, Member

We concur:

Newton Frishberg, Chairman

Joan B. Thompson, Member

UNITED STATES DEPARTMENT OF THE INTERIOR
OFFICE OF HEARINGS AND APPEALS
Hearings Division
6432 Federal Building
Salt Lake City, Utah 84111

RECOMMENDED DECISION

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STATE of CALIFORNIA, :
Applicant :
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UNITED STATES of AMERICA, : LOS ANGELES 0164001
(Bureau of Land Management), :
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Respondent :
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FORT MOJAVE TRIBE, :
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Intervenor :
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APPEARANCES:

Paul M. Joseph, Esq. (For Applicant)	-	Deputy Attorney General State of California Sacramento, California
Foster Buckner, Esq. George H. Wheatley, Esq. (For Respondent)	-	Office of the Solicitor Department of the Interior Los Angeles, California
Raymond C. Simpson, Esq. (For Intervenor)	-	Long Beach, California

APPLICATION REJECTED

Preface

On April 27, 1959, the State of California filed an application with the Bureau of Land Management (the BLM) for patent to certain alleged swamplands in the Mojave Valley, under the Swamp and Overflowed Lands Acts

of September 28, 1850, R.S. 2479, 2480, 2481 (1875), 43 U.S.C. 982-984 (1964), and July 23, 1866, R.S. § 2488 (1875), as amended, 43 U.S.C. 987 (1964). The lands applied for, designated by legal subdivisions, lie within sections 3, 10, 11, 14, 15, 22 and 23, Township 10 North, Range 22 East, S.B.M., comprising 1,721.71 acres (hereafter, the subject lands). They are located about eight miles north of Needles, California, and one and one-half miles west of the present channel of the Colorado River, which also marks the present boundary between the states of California and Arizona.

California's application was rejected by BLM decision dated April 22, 1964, on the grounds that:

The lands in T. 10 N. R. 22 E., San Bernardino Meridian, California were first surveyed under the United States rectangular system by G. W. Baker, Deputy Surveyor in 1883 and the plat of survey compiled therefrom was approved on December 18, 1884. Upon this plat of survey the Colorado River . . . flows to the west of the area here in interest.

* * *

There is no evidence showing that the governing survey and plat of T. 10 N., R. 22 E., approved December 18, 1884, was not correct. This plat fails to indicate the lands as swamp in character. The evidence cited above satisfactorily shows that the lands in question were not in existence in the State of California at the date of the swampland grant. 1/

1/ The 1884 Baker survey referred to was a sectional survey of the south half of T. 10 N., R. 22 E. With the exception of the tracts in sections 22 and 23 (neither of which were sectionalized by Baker), the subject lands lie in the north half of the township which was not surveyed into sections until much later. Therefore, it is difficult to perceive how the Baker survey could be cited as the basis of the rejection.

This decision was affirmed on appeal to the Director, BLM, by his decision of September 30, 1964. Upon further appeal, the Secretary through delegated authority, noting that the Act of July 23, 1886, R.S. 2488, supra, provided for a hearing and such had not been held, set aside and remanded the case to the BLM and ordered that California be granted a hearing. (State of California, A-30387, January 18, 1966.) Following a hearing in Sacramento in September 1966, the Hearing Examiner issued his decision of March 15, 1967, concluding that California was entitled to 1,411.07 of the 1,721.71 acres applied for. The State Director of the BLM appealed that decision to the Director.

While that appeal was pending, the Bureau of Indian Affairs, on July 11, 1967, petitioned for itself and the Fort Mojave Tribe for leave to intervene in the proceedings. By separate action, the Fort Mojave Tribe, through its attorney's letter of August 9, 1967, requested consent to intervene, alleging that it has an interest in the subject lands and is entitled to participate in the proceedings. Thereupon, the Office of the Secretary assumed jurisdiction of the matter, granting the petition of the Fort Mojave Tribe to intervene and denying the petition of the Bureau of Indian Affairs (In the Matter of Land Classification, State of California, Applicant, A-31022, August 14, 1968).

Following a year that produced additional motions, orders and correspondence, the Solicitor issued Order A-31022 (amended) dated October 27, 1969, which reads in part:

... no determination can or should be made in this proceeding as to the effect of the Tribe's claimed aboriginal

title to the land claimed by the State under the Swamp Land Act. Rather, the questions as to which the state, as applicant, must present evidence are:

1. Was the land involved here in esse in the State of California on September 28, 1850, and
2. Was the land swamp and overflow, as contemplated by the Swamp Land Act, on September 28, 1850?

Although there has been one hearing at which the state presented evidence concerning these questions, the Tribe has petitioned for a hearing de novo in order to present its position, we are not favorably inclined to burden it with re-introducing the same evidence adduced at the previous hearing. Nevertheless, where evidence may be lacking the Secretary may properly order a further hearing in order that a record may be assembled upon which an informed determination may be made.

In the instant case evidence was adduced to show the position of [the] land and its character in 1850 as well as at the present time. But whether it is the same identical land which has remained in place within the State of California continuously from 1850 to the present time is not clearly shown. Accordingly, a further hearing must be held to afford the state an opportunity to introduce evidence in this regard. This is best accomplished by vacating the hearing examiner's decision of March 15, 1967, and reopening the hearing to permit the introduction of the required evidence. When the hearing is re-convened, the Tribe and the Bureau each will be afforded the opportunity to present such evidence as may now be available to them as to the right of the state to the subject lands under the Swamp Land Act, and it is so ordered.

Accordingly, a further hearing was held on December 15-19, 1969, at Riverside, California, and on March 10-13, 1970, at Palm Springs, California. The issues for determination are as stated in the order of October 27, 1969, above. 2/

2/ The decision which follows is based upon the transcript of record of both the 1966 hearing (this footnote continued on next page)

APPLICABLE LAW

By the Swamp and Overflowed Lands Act of September 28, 1850, supra, there was granted to the State of California "the whole of the swamp and overflowed lands, made unfit thereby for cultivation", which are situated within the State (R.S. § 2479) [43 U.S.C. § 982 (1970)]; and it was provided that the Secretary of the Interior shall make out and transmit to the governor accurate lists and plats of such lands and at the request of the governor "cause patents to be issued . . . conveying to said State the fee simple of said land(s)" (R.S. § 2480) [43 U.S.C. § 983 (1970)]. It was further provided that in making out the lists and plats "all legal subdivisions, 3/ the greater part whereof is wet and unfit for cultivation, shall be included . . . but when the greater part of a subdivision is not of that character, the whole of it shall be excluded therefrom". (R.S. § 2481) [43 U.S.C. § 984 (1970)]. In addition, the Act of July 23, 1866, supra, provided that if "the authorities of said State, shall claim as swamp and overflowed, any land not represented as such upon the map or in the returns of the surveyors, the character of such land at the date of the grant September 28, 1850, and the right to the

(footnote 2 continued from page 4) (hereafter, the first hearing) and the 1969-70 hearing (hereafter, the second hearing). The transcript of the first hearing ends with page 513 and the transcript of the second hearing begins with page 514. Relative to the first hearing, California exhibits are prefixed CA-, BLM exhibits BU-, and Fort Mojave Tribe exhibits MO-.

3/ The legal subdivisions contemplated by the law were forty acre tracts. Buena Vista County v. Railroad Co., 112 U.S. 165 (1884).

same shall be determined by testimony, to be taken before the Supervisor of Surveys, who shall decide the same, subject to the approval of the Commissioner of the General Land Office" ^{4/} (R.S. § 2488) [43 U.S.C. § 987 (1970)]. For ease of reference these statutes collectively will be referred to hereafter as the Swamp Lands Act, or the Act.

The effect of the Act was to invest the State in praesenti with an inchoate title to all unappropriated public lands, found within its borders, possessing the character of "swamp and overflowed, made unfit thereby for cultivation". This title would later be perfected as of the date of the Act, with the issuance of a patent identifying the lands as being of the required character and describing them in conformity with the public land surveys. Before issuance of such patent it is the duty of the Secretary of the Interior to determine whether the lands claimed were in fact swamplands. United States v. O'Donnell, 303 U.S. 501 (1938); United States v. Minnesota, 270 U.S. 181 (1926); Work v. Louisiana, 269 U.S. 250 (1925); and French v. Fyan, 93 U.S. 169 (1876).

It follows that for lands to fall within the purview of the Act, they must have been of the character described as of the date of the Act. United States v. Minnesota, *supra*; Buena Vista County v. Iowa Falls, et R. R. Co., 112 U.S. 165 (1884); and Kirby v. Lewis, 39 Fed. 66 (1889).

What characteristics land must have in order to be classified as swamp and overflow under the Act is a question of fact to be determined

^{4/} The offices of Commissioner of the General Land Office and Supervisor of Surveys were abolished by the 1946 Reorganization Plan No. 3, § 403, and their functions transferred to the Secretary of the Interior or his delegates.

in each individual case. The courts and the Department have passed on this question in a considerable number of cases. At the outset it should be observed that the Act contemplates two different kinds of land, (1) swamp and (2) overflow, each of which may by reason of wetness be rendered unfit thereby for cultivation. Merrill v. Tobin, 30 Fed. 738 (1887); Miller v. Tobin, 18 Fed. 609 (1883); and San Francisco Savings Union et al. v. Irwin, 28 Fed. 708 (1886), aff. Irwin v. The San Francisco Savings Union et al., 136 U.S. 578 (1890). In San Francisco Savings Union, the Court of Appeals said:

The act of 1850 grants swamp and overflowed lands. Swamp lands, as distinguished from overflowed lands, may be considered such as require drainage to fit them for cultivation. Overflowed lands are those which are subject to such periodical or frequent overflows as to require levees or embankments to keep out the water and render them suitable for cultivation . . . When drainage, reclamation or leveeing is necessary to enable the farmer to use them for some of the ordinary purposes of husbandry, the lands are within the terms of the Act . . .

Not all overflowed lands qualify. In Heath v. Wallace, 138 U.S. 573 (1891), the court said:

. . . lands subject to overflow, or 'subject to overflow from slough,' or 'subject to periodical overflow,' are not necessarily such as come within the descriptive terms of those inuring to the state under the swampland grant . . . there is a marked distinction between the terms 'overflowed' and 'subject to periodical overflow'. The term 'overflowed' . . . has reference to a permanent condition of the lands to which it is applied. It has reference to those lands which are overflowed and will remain so without reclamation or drainage; while 'subject to periodical overflow' has reference to a condition which may or may not exist, and which when it does exist is of a temporary character. It was never intended that all the public lands which perchance might be temporarily overflowed at the time of freshets and high waters, but which, for the greater portion of the year, were dry lands, should be granted to the several states as 'swamp and overflow' lands.

According to several decisions of the California State Supreme Court, the test appears to be whether overflow makes land unfit for cultivation and raising of grain or other staple crops after the subsidence of the overflow in normal years. In Keeran v. Allen, 33 Cal. 542 (1867), the court said:

While the question of 'unfitness for cultivation' should be solved with a proper reference to principle, still, for the purposes of exactness and uniformity in judicial administration, it is desirable to subject it to some test which juries can readily appreciate and apply. To that end, the capacity of the land to produce a staple crop as the result of cultivation was hit upon by the Land Office at an early day, as a test by which to determine the character of the land, as wet or dry (Lester's L.L. 547); and this test has been steadily adhered to ever since.

See also, Thompson v. Thornton, 50 Cal. 142 (1875); and Keeran v. Griffith, 34 Cal. 580 (1868), 31 Cal. 462 (1866).

Departmental decisions reflect the same rationale. For example, State of California v. United States, 3 L.D. 521 (1885), held:

A careful consideration of all the evidence shows that said tract is subject to periodical overflow in the winter or spring months, but the overflows subside so as not to render the land unfit for successful cultivation by reason of the overflow. The land, therefore, is not swamp and overflowed land within the meaning of the swamp land act. . .

See also State of Oregon et al., v. Mothershead, 19 L.D. 63 (1894); Moylan v. State of Oregon, 10 L.D. 321 (1890); and State of Oregon, 2 L.D. 651 (1883).

An acceptable definition of "swamp" land, as distinguished from "overflowed" land, is:

In geography, low, spongy land--generally saturated with moisture, and unfit for agricultural or pastoral purposes. The term is commonly used as synonymous with bog and

morass; but a swamp may be here and there studded with trees . . . while bogs and marshes are destitute of trees, though frequently covered with grasses and aquatic vegetation.

Authored by David Page in 1865, this definition appears in the Glossary of Geology and Related Sciences, the American Geological Institute, Publication 501 (1957), as well as in the Dictionary of Mining, Mineral and Related Terms, Bureau of Mines (1968).

The burden of proof is upon California to show clearly that it is entitled to the subject lands under the terms of the Act. Whether the proceeding be in court or in the Department, a claimant must show "clearly . . . by full proof of the disputed fact, that the lands in controversy were swamp and overflowed lands at the date of the Act . . ." Buena Vista County v. Railroad Co., *supra*. "Donations of the public domain for any purpose are never to be presumed. Those who claim against the government under legislative grants must show a clear title". Rice v. Railroad Co., 110 U.S. 698 (1884). See also, State of California, 40 L.D. 529 (1911); State of California, 15 L.D. 428 (1892); and State of Louisiana, 5 L.D. 514 (1887). In the 1911 decision the Department said:

. . . the burden of proof vested upon the State in connection with its application, under the act of [July 23,] 1866 . . . to establish by clear and convincing proof the swamp and overflowed character and condition of the land at the date of the grant, September 28, 1850.

GENERAL

The subject lands are located in the Mojave Valley within the present boundaries of the State of California. The valley, traversed by the Colorado River, is an alluvial plain stretching southward from Hardyville where the river issues from a narrow canyon, to Topock, Arizona,

where the river again is contained in a narrow canyon. The plain is approximately 33 miles long and varies from 2 to 8 miles in width. Sharp bluffs rise on both easterly and westerly sides of the plain to a height varying from 20 to 70 feet (Tr. 25). Prior to the closure of Hoover Dam in 1935, the valley was subjected to annual floods, the magnitude of which varied according to a given year's precipitation in the vast drainage area. The flooding usually occurred between the first of May and the middle of July, sometimes covering the plain with water from bluff to bluff. Because of the annual flooding, heavy discharge, and the unruly nature of the river, the main channel throughout historic times has occupied varying positions within the valley floor. The flow of the river through the valley is now confined to a man-made channel completed sometime after 1951.

The major portion of the subject lands lies in the original flood plain, abutting against the California or westerly bluff. The lands cover an area three miles long, north to south, and one to one and one-half miles wide. They are covered with a thick growth of tamarisk, a type of phreatophytic or water loving growth, commonly found in washes. The soil is characterized generally as being a silt, varying from fine mud to sandy, with detritus materials along the western side as a result of erosion from the bluffs. The land is basically dry and of the same character as lands immediately adjacent to the north and to the south which are presently under irrigated cultivation.

In 1910, the governor of California applied to the Department for a swampland segregation survey of certain lands in T. 10 N., R. 22 E., S.B.M., presumably including the subject lands (Ex. O). By Commissioner's

letter "E", dated July 9, 1912, it was announced that the survey of the remaining unsurveyed public lands in the northern part of T. 10 N., R. 22 E., would be performed when funds are available. A subdivision survey was finally completed in 1941, * and approved in 1943, * called the Vander Meer survey (Ex. G). The surveyor classified no lands as swamp and overflow, giving rise to California's present application and the proceedings had thereunder.

FIRST ISSUE

Was the Land Involved Here in Esse in the State of California on September 28, 1850?

The evidence presented on this issue consists of many maps, survey plats and field notes, various reports, and the testimony of experts on map interpretation and river hydraulics. Col. Herbert N. Turner, 5/ a consulting engineer, was employed by California in 1966, to make a study of the hydrology and hydraulics of the stretch of the river involved here, for the purpose of determining the alignment of the river in 1850, and the character of the soil in Mojave Valley generally (Tr. 126 - 127). In his opinion the alignment of the river through the portion of the Mojave Valley involved here has remained essentially the same during the so-called

5/ Col. Turner was the District Engineer for the Sacramento District, Corps of Engineers, U.S. Army, at the time he retired in 1963, after 25 years of service with the Corps. He has had extensive experience in the field of water resources planning and development. He received a B.S. Degree in Civil Engineering from Oklahoma State University in 1935, and later graduated from two military engineering schools (Ex. Q; Tr. 122-125).

*Through typographical error, the Hearing Examiner's decision showed these dates as "1931" and "1933."

historic period from 1850 to 1935, after which the natural regime of the river was altered by closure of Hoover Dam. This alignment in relation to the subject lands is accurately depicted on U.S.G.S. map of 1902-1903 (Ex. U), and is the same alignment shown on earlier maps made by the U.S. Coast and Geodetic Survey in 1893-1899 (Ex. V), and surveyor Minto in 1899 (Ex. W; Tr. 128).

With the average year's spring runoff the river would overflow its banks and flood the valley from mesa to mesa (Tr. 148). This would occur sometime from the first of May to the middle of July (Tr. 138). During this flood stage the center of the current, or the thalweg, would remain pretty well in line between a promontory at Fort Mojave, which is about five miles upstream from the subject lands, and a promontory at Piute Wash, which is about one mile downstream from the subject lands (Ex. A). With the flood's subsidence in a given year, the main or low water channel of the stream would probably have altered its position from that where found the previous year or years, but it would always return to a position within a corridor approximately 4,000 feet wide, within which it would meander in gentle curves until the next year's flood. This corridor was always easterly of the subject lands except for a minor impingement on the extreme southeasterly corner.

According to Col. Turner, several forces and conditions combined to contain the natural river within this narrow corridor. With its tremendous volume of spring runoff, the river would issue at great force and velocity from a walled canyon northwest of Fort Mojave and strike the promontory at Fort Mojave which would deflect the flow and send it in a

southwesterly direction. Because of the sharp gradient of the valley floor and the heavy volume of flow the main body of water, in seeking the path of least resistance, would continue without significant meandering until it struck the promontory at Piute Wash, which would in turn deflect the flow to the southeast (Ex. A). This action created a number of channels separated by islands within the 4,000-foot corridor (Ex. X-1).

Each year, following flood stage, the low water channel would occupy one or another of these channels and remain in the corridor until the next year's flood. Col. Turner characterized a river with this form of channeling as a "braided stream".

Predicated upon the "braided stream" theory and other information available, it was Col. Turner's opinion that in 1850 and throughout the historic period, the main channel of the river has been east of the subject lands, except at the far southeastern corner, where the river encroached to some extent as shown on the U.S.G.S. map of 1902-1903 (Ex. U; Tr. 205, 208).

In sharp contrast is the testimony of Mr. John S. McEwan, 6/ supervising hydraulic engineer with the Bureau of Reclamation, called as a

6/ After receiving a Bachelor of Science degree from Utah State University in 1940, Mr. McEwan was employed by the Bureau of Reclamation in Salem, Oregon, making studies of the Willamette River Basin. He then served five years in the U.S. Army Corps of Engineers after which he returned to the Bureau of Reclamation. In 1947, he was assigned (this footnote continued on next page)

witness by the BLM. According to Mr. McEwan, the river in its natural regime, rather than being a "braided stream" confined to a narrow corridor, was a meandering stream, moving in large curves from bluff to bluff over the entire width of the valley. He illustrated this by use of an aerial mosaic (Ex. BU-2), flown in 1951, on which he identified various broadly sweeping curves as remnants of former river channels. In describing the river's action, he said it issued from the canyon at the upper end of the valley in a sweeping curve toward Arizona and recurved to the west as it passed the promontory at Fort Mojave, going to the far or California bank, where it would be deflected further into the subject lands (Tr. 725). He said there are numerous curves in the bluff lines, both on the California and Arizona sides, which are typical of curves impressed by the river upon erodible bluffs. They indicate that the river has traversed the full width of the valley (Tr. 726). He also said that the California bluffs throughout the length of the subject lands were formed by the main channel of the river as evidenced by cut banks or small declivities which would not have been formed by a backwater or simple flooding (Tr. 727, 773-774).

(footnote 6 continued from page 13) to that Bureau's Office of River Control which had the responsibility for the physical control and regulation of the Colorado River from Hoover Dam to the Mexican border. As Chief of the Channel Control Branch, he supervised the design and construction of the channelization of the river in the Mojave Valley. Thus, approximately 20 years of his professional career was spent in connection with work on the Colorado River in the Mojave Valley and other areas (Tr. 707-708).

In connection with the design of the artificial channel through the valley, it was necessary for Mr. McEwan, as Chief of the Channel Control Branch, to consider the various positions occupied by the river in the past. Consequently, he made a personal study of the river movements and concluded that, in 1850, the main channel of the river ran against the California bluff line west of the subject lands. His study included personal inspection on the ground, examination of aerial photography and maps, and information derived from a study of writings of other engineers, particularly the report of Thomas H. Means published in 1953 (Ex. BU-1; Tr. 710-712, 772-774).

Mr. Fred Kunkel, 7/ a geologist-hydrologist employed by the U.S. Geological Survey, appearing as a witness for the Fort Mojave Tribe, agreed in essence with Mr. McEwan that the river during the historic period has occupied all parts of the flood plain and the subject lands,

7/ Mr. Kunkel has been employed by the U.S. Geological Survey, Water Resources Division, since 1948, and is currently assistant District Chief for the Water Resources Division, California District, Menlo Park, California. In the course of his employment he has conducted and supervised many ground water studies in California, most of which involved some type of swamp deposits. He received a Bachelor of Science degree from the University of Chicago in 1941, and completed an additional year's graduate work.

(this footnote continued on next page)

and sometime during that period has flowed tightly against the California bluffs (Tr. 1266, 1286-1287). He based this upon his field examination of the area, test borings of the subsurface (Ex. MO-33(a)), and examination of the historical record (Tr. 1263, 1286).

Mr. George W. Johnson, 8/ a cadastral engineer, also made a study to determine the positions occupied by the river in the valley and expressed the opinion that in 1850 the subject land was in the bed of the river. He based this upon his study of cadastral survey records (Tr. 414) and maps of the river made by early-day explorers (Exs. 11, 13). Of the survey records, Mr. Johnson relied chiefly upon a survey of the second standard parallel, which is also the south boundary of Township 11 N., Range 21 E., made by Col. Henry Washington in October 1855. In

(footnote 7 continued from page 15) He is a fellow of the Geological Society of America, a member of the Association of Engineering Geologists and the American Geophysical Union, and is a registered geologist and engineering geologist in California (Tr. 1218-1222).

8/ At the time of the first hearing, Mr. Johnson was Chief of the Branch of Cadastral Survey, BLM, Sacramento, California, which position he held from 1961 until his retirement in 1969. He was employed in the cadastral engineering field with the Government continuously from 1938. He received a Bachelor of Science degree in civil engineering from Iowa State College in 1930. He is a registered professional engineer and land surveyor in Utah, and a registered land surveyor in California.

making the survey, Col. Washington ran an offset line going east through Range 21 E., to a point where, according to his field notes (Ex. 12), he reached the right bank of the Colorado River which he described as "a bold, deep stream at this point about 400 yards wide low, (sic) water and muddy, and not unlike the Mississippi. Very cool and most excellent water". Col. Washington then completed his offset line by going north to a point where he intersected the second standard parallel, which, according to his notes, was "on the Right bank of the Colorado River at high water and on top of Bluff about 20 feet high being West margin of swamp and foot of rugged hills". The survey tracement (Ex. MO-1) shows the river flowing north and south adjacent to the two points described in the field notes.

On March 3 and 4, 1970, Mr. Johnson, with the aid of a BLM survey crew, made a retracement on the ground of Col. Washington's offset line in order to determine where Col. Washington stood when he said he came to the Colorado River. Mr. Johnson depicted the results of his retracement on a fractional township plat (Ex. BU-7), showing his interpretation of Col. Washington's survey, and its relationship to the river and the subject lands.

Mr. Johnson emphasized that he located certain of Col. Washington's monuments and identified natural features of terrain described by Col. Washington, thereby attesting to the accuracy of the retracement (Tr. 1451-1456).

As shown on the exhibit, it was Mr. Johnson's conclusion that

Col. Washington, in 1855, found the river flowing near the California bluffs through the westerly portion of the subject lands (Tr. 448).

In Col. Turner's opinion, Col. Washington did not locate the right bank of the river at high water and he goes on to say that "high water, of course, includes the bluffs on either side of the valley in this area" (Tr. 211). Left unexplained is how Col. Washington could have found the river at flood stage in October in light of the otherwise uncontradicted evidence that the floods occurred in the months of May through July.

In reaching their respective conclusions as to where the river flowed in relation to the subject lands, as of 1850, all of the witnesses relied to some extent upon the maps, records and field notes of the early-day explorers and boundary surveyors. The first map of record, after the critical date of September 28, 1850, is that of Capt. Sitgreaves, a U.S. Army topographic engineer, as the result of his mission in 1851 seeking routes of communication (Ex. X-5; Tr. 202). According to Col. Turner, Capt. Sitgreaves took celestial observations to determine latitudes and longitudes at points designated on the map as Camps 32, north of the subject land, and 35, south of the subject land. Using this information, Col. Turner plotted on the map Lat. 35° 00' N. and Long. 114° 40' W., and an outline of the subject lands as they lie in relation to those coordinates. With this plotting, the river flows to the east of the lands. (It should be noted here that the northern boundary of the subject lands, the township line between townships 10 N. and 11 N., is 1.2 miles south

of Lat. 35° 00' N. The line of Long 114° 40' W. runs through the subject lands near the western border below the bluffs, leaving the bulk of the lands to the east of that meridian).

From the evidence presented it is not possible to check the accuracy of the longitude determinations made by Capt. Sitgreaves and, therefore, it leaves open to question whether Col. Turner's plotting of the subject lands with relation to the river is accurate. On its face the map tends to disprove his conclusion. The hachuring, which is highlighted by a red line and a series of green X's on Exhibit X-5, depicts what the cartographer intended to be the bluff line (Tr. 769-770, 1338). Assuming that the bluff line is correctly depicted in relation to the river, a portion of the subject lands would of necessity be in the bed of the river channel or to the east of the channel.

Mr. McEwan stated that the Sitgreaves map is not drawn accurately enough to plot with precision the relation of the main channel of the river to the subject lands. However, he would accept the hachured line as indicative of a bluff being in the general vicinity, that being the conventional symbol used by engineers prior to adoption of modern contour lines (Tr. 742-744).

The Sitgreaves map is referred to in the report of W. P. Rowe and Sons, Consulting Engineers to the Colorado River Boundary Commission of California, dated April 27, 1954 (Ex. 7), with the comment: "It shows the main channel of the river against the California bluffs for most of the distance through the Mojave Valley".

The second map in point of time is the so-called Ives map of 1858 (Exs. X-3, 14, CA-10). It resulted from the expedition of Lt. Joseph C. Ives, Corps of Topographical Engineers, U.S. Army, who ascended the river by steamboat from the Gulf of California with the objective of mapping the river for navigational purposes (Tr. 186). As he proceeded upstream, he mapped the river and surrounding country and, by celestial observations, made latitude and longitude determinations at selected stations, which are identified on the map by camp numbers. The written record of his journey is contained in a Senate Report of the 36th Congress, published in 1861 (Exs. CA-14, CA-6). An extract from the national archives shows a portion of his astronomical calculations and findings of latitude and longitude (Ex. CA-13). The topographer on the journey was Mr. F. W. Egloffstein who was acknowledged to be outstanding in the field (Tr. 575-576).

From the evidence presented it would appear that the Ives map quite accurately portrays the general alignment of the river as it flowed through the Mojave Valley in 1858 (Tr. 252, 572, 759-760; Exs. 7 and BU-1). As Col. Turner said: "[Ives'] margin of error wasn't of any consequence . . . (Tr. 253) . . . this map of Ives of 1858 . . . is accurate to a degree that I think that we can depend upon the map for the purpose of determining the location of the river, particularly at those points at which he took observations (Tr. 1566). ^{9/} The only point of disagreement

^{9/} Col. Turner stated that the U.S.G.S. map shows the alignment of the river from Fort Mojave to the Needles to be South 19° 30' East, whereas the Ives map has it (this footnote continued on next page)

concerns the proper placement of the subject lands on the Ives map (Ex. X-3) to correctly reflect the relationship between the lands and the river, which of course is critical to determination of the basic issue. This disagreement arises from differing meanings and values to be given to two features of the map: first, the designation of the California bluff line adjacent to the subject lands, and secondly, the accuracy of the lines of longitude. With respect to the first feature, the construction of the map is described in appendix D of the Ives report (Ex. CA-6), which says in part:

"The alluvial lands along the Colorado . . . , being designated by darker tint, are distinctly defined, as well as the boundaries and extent of the mesas that limit them. The loftier table-lands, by their lighter appearance, may also be distinguished from lower levels."

These lighter and darker shadings are clearly evident on the map, depicting the valley and bordering mesas and the deep, narrow canyons to the north and south. All this is generally in conformance with presentday topographic maps (Tr. 759). At the latitudinal area of the subject lands the river is shown flowing very near the westerly edge of the dark shading. This would indicate on its face that the topographer found the river to be very close to the California bluff line, leaving the bulk of the subject lands either in the bed of or easterly of the river.

(footnote 9 continued from page 20) South 16° 30' East (Tr. 572). However, the alignment over a greater distance from Fort Mojave to the mouth of the Bill Williams River appears to be the same on both maps (Compare Ex. CA-10 with Exs. MO-16, MO-17). The slight misalignment at the Needles area may have occurred because Lt. Ives made no astronomical observations there (Tr. 1566).

Col. Turner plotted the subject lands wholly on the light colored shading of the map, westerly of the river. He explained that the demarcation line of the dark and light shading does not represent the bluff line but rather the growth line of trees and brush as viewed by Lt. Ives' topographer from the boat in the river (Tr. 577; Ex. CA-1). Messrs. Johnson, McEwan and Kunkel were unanimously of the opinion that the demarcation line represents the bluff line and that Col. Turner's plotting of the subject lands on the map is in error (Tr. 435, 732, 744, 1349). Mr. McEwan stated that the campsite at Camp 45 was in the immediate vicinity of the subject lands and the topographer had a perfect opportunity to see where he was in relation to the bluff line (Tr. 746). Appendix B of Lt. Ives' report, at page 7 (Ex. CA-14), indicates that the latitude and longitude position determinations for the various camps, including Camp 45, were made on the banks of the river. There is nothing in the report to indicate that the topographer did not disembark from the boat and use the banks of the river as vantage points for his mapping.

The second controversial feature of the Ives map, the lines of longitude, warrants close analysis. Lt. Ives made latitude and longitude determinations at a number of campsites on the banks of the river, identified on his map by stars placed next to the campsite numbers. The coordinate readings for each are listed in his report at page 7 of Appendix B. Based upon these readings and other readings made during the course of the mission, there was superimposed upon the Ives map certain lines of latitude and longitude. Those pertinent here are Lat. 35° 00' N. and Longs. 114° 30' W. and 114° 45' W. By interpolation, Col. Turner drew on the map

(Ex. X-3) the line of Long. $114^{\circ} 40' W.$ (Tr. 187) which, by reference to modern maps, is known to extend north and south through the westerly side of the subject lands (Exs. A, B, MO-16). He also drew in what he called the correct line for Lat. $35^{\circ} 00' N.$, shown to be a short distance south of Lt. Ives' line for that latitude. Col. Turner based this correction on the survey of 1893 to 1899, made by the U.S. Coast and Geodetic Survey, which found Ives' latitude to be in error by one minute (Tr. 193; Ex. V). Col. Turner found the Ives longitude lines acceptable without correction (Tr. 497-499). He plotted the subject lands on the Ives map to conform to the corrected latitude line and the Ives longitude lines, which necessarily placed them completely on the light shaded area of the map described by the Ives notes as being mesas or loftier tablelands.

In Mr. Johnson's opinion, Lt. Ives' longitudinal positioning was in error by approximately one minute and eighteen seconds (Tr. 437) which he demonstrated by placing a transparency of Lt. Ives' map over a present-day quadrangle map (Ex. 13). By matching the lines of longitude, the position of the river on the Ives map is more than a mile east of a definite canyon, a point where the river could not possibly have altered its position (Tr. 438). By correlating the river position with the known canyons rather than with matching lines of longitude, the river as shown by Lt. Ives runs near the California bluff line and through the subject lands. He made a similar demonstration using an aerial mosaic (Ex. 11) showing how Lt. Ives' river loop conforms closely to what he considers to be an old river channel through the subject lands (Tr. 440-441).

According to Mr. Johnson's testimony, Lt. Ives' longitude readings were too small; that is, as an example, Lt. Ives would have read 114° 38' 18" when actually standing on a spot now known to be 114° 39' 36". Assuming that Lt. Ives' readings were thusly in error, the correction to be made on his map would be to move his lines of longitude to the east by approximately 1.2 statute miles. ^{10/} If this were done, the line of Long. 114° 40' W. at the latitudinal position of the subject lands would fall very close to the west bank of the valley (near Camp 45), leaving the bulk of the subject lands in the bed of the river and easterly thereof.

Mr. McEwan also was of the opinion that Lt. Ives' longitude readings were too small. Using present-day topographic maps (Exs. BU-4, BU-5) Mr. McEwan plotted the positions on the bank of the river where Lt. Ives stood, according to his notes, when he took coordinate readings at Camps 47, 48 and 59'. All three are points where the river flows in a canyon and could not have altered its position. Mr. McEwan summarized his conclusions as follows:

	Position as <u>True Position</u>	Error <u>Recorded by Ives</u>	<u>(Minus)</u>
Camp 47	114° 35' 20"	114° 34' 07"	1' 13"
Camp 48	114° 35' 18"	114° 33' 42"	1' 36"
Camp 59'	114° 36' 10"	114° 35' 00"	1' 10"
	Average	1' 19"	^{11/}
(Tr. 813-815, 1020-1025, 1030-1031)			

^{10/} Official notice may be taken that at Lat. 35° 00' N., a second of longitude measures approximately 83 feet. Accordingly, one minute and eighteen seconds would measure approximately 6,474 feet, or 1.2 statute miles. (See Tr. 1634)

^{11/} Col. Turner expressed general agreement with these findings (Tr. 884).

In each instance the topographic map shows that Lt. Ives' readings, if correct, would have placed him in the mountains well east of the river canyon, whereas his notes show that he actually stood on the bank of the river (Appendix B of Ex. CA-14). Translated into linear measurement, the errors are approximately 6,059, 7,968 and 5,810 feet, respectively--an average of 6,612 feet or 1.25 statute miles.

A similar calculation can be made at Camp 33 at the mouth of the Bill Williams River. Lt. Ives' longitude reading was $114^{\circ} 06' 45''$ whereas the actual position on a modern U.S.G.S. map (Ex. MO-16) is approximately $114^{\circ} 08' 00''$. Again, Lt. Ives' reading is too far east, a distance of approximately 1.2 miles. 12/

In later testimony, Col. Turner acknowledged that the Ives' longitude readings were in error by an average of one minute and five seconds 13/ but that the latitudes are accurately portrayed on his published map (Tr. 1561, 1567, 1612). From a comparative analysis of all points on the river between Camps 33 and 51, covering approximately 120 miles of the river, Col. Turner found that Lt. Ives' readings, with the exception of three stations, were consistently to the east of the true map positions. The three exceptions were Camps 38, 45 and 51, where Lt. Ives' readings, according to Col. Turner, were too far to the west

12/ The latitude at Camp 33 is $34^{\circ} 18' 16.9''$ where each second of longitude measures approximately 84 feet. The measurements at this camp were made by the Hearing Examiner using Ex. MO-16.

13/ At one point he said one minute and two seconds (Tr. 1561).

(Tr. 1554, 1569-1570). How Col. Turner arrived at these three exceptions is difficult to perceive since the sites of Camps 38 and 51 now lie in the beds of the lakes behind Parker and Davis dams, respectively, and Camp 45 was in the Mojave Valley where the river has shifted its position over the years. As to the rest of the stations, he apparently is in agreement with Mr. Johnson and Mr. McEwan that Lt. Ives' readings were east of his actual position.

The end result of Col. Turner's testimony seems to be that Lt. Ives made offsetting errors in longitude, both east and west, and therefore no change should be made in the line of Long. 114° 40' as depicted on the Ives map (Tr. 1567-1578, 1611-1612, 1629-1630).

A study of Lt. Ives' report and a comparison of his map (Ex. CA-10) 14/ with present-day U.S.G.S. maps (Exs. MO-16, MO-17) reveal some compelling reasons for concluding that the Ives lines of longitude are positioned too far to the west at the vicinity of the subject lands. These reasons are:

1. Precisely accurate time is essential to making accurate astronomical readings for longitude (Tr. 650-660; Ex. BU-1 at p. 4 of Appendix, Ex. CA-14 at p. 4 of Appendix A). The remarks contained in Appendix A of the Ives report indicate that at Camp No. 1, near the mouth of the Colorado, he determined the longitude

14/ Ex. CA-10 is a transparency of Lt. Ives' map blown to a scale of 1:250,000 to match the scale of Exs. MO-16 and MO-17.

with a transit and by observing occultations. It is also stated that the longitudes of the other positions on the river were determined by taking a mean of the results obtained from three chronometers. The chronometers were first set in motion on December 10, 1857, at Camp No. 1 and were rated by transit observations. Because there were no telegraph or radio facilities available, the accuracy of the chronometer settings becomes suspect and the reasonable inference to be drawn is that any errors in longitude determinations most likely resulted from the use of incorrect time. Lt. Ives maintained a daily comparison record from February 2 through February 21, 1858, 15/ showing that two of the chronometers were in variance with each other at a progressively growing rate from 16 minutes 4 seconds to 17 minutes 56.5 seconds (Ex. CA-13). A reasonable inference to be drawn from this is that if inaccurate time caused longitude error, the error would be consistent in its direction. Following this reasoning, the logical conclusion would be that Lt. Ives' longitude reading at Camp 45 was in error in the same direction and relatively in the same degree as has been shown to be true at Camps 33, 59', 47 and 48.

15/ During this period of time the expedition progressed from Camp 33 at the Bill Williams River, through the Mojave Valley, to Camp 49 in the canyon to the north.

The readings at Camps 33, 45, 47 and 48 were made within a period of approximately two and one-half weeks, and at Camp 59' about a month later. As best as can be determined from the fragmented record of Lt. Ives, the various observations were made on the banks of the river, at about the same time of the night, using a mixture of common celestial bodies and taking the time from the same chronometer.

2. The remarks contained in Appendix A of Lt. Ives' report state that the results of the astronomical observations accord very closely with the results of the compass survey, indicating that the azimuth relationship between camps, as they appear on Lt. Ives' map, should accord with the azimuth relationship between Lt. Ives' latitude and longitude positions as plotted on a modern chart. Using the triangle formed by Camps 59', 45 and 43, it can be shown that this relationship is in fact in close accord. For ease of explanation, this is illustrated on Appendix A, attached hereto, by showing the approximate bearings and distances of the legs of the triangle taken from Lt. Ives' map and as plotted on a modern topographic map (Ex. A). The inference to be drawn from this is that if it is found that an error in longitude reading was made at Camp 59' the same error was made at Camp 45.

3. The California-Nevada oblique boundary line is represented on Lt. Ives' map and on modern U.S.G.S. topographic maps (Ex. A) as a dashed line intersecting the Colorado River at the 35th parallel. According to the testimony, these are accurate representations (Tr. 891). Adverting again to plane geometry, the lines of the oblique boundary, the 35° 00' parallel and the 114° 40' meridian form a triangle as illustrated on Appendix B, attached hereto. As shown by the base leg of the triangle on the U.S.G.S. map, the known distance from the point of intersection at the river to the 114° 40' meridian is approximately 2.1 miles, whereas the readings made by Lt. Ives would place the meridian about 3.8 miles westerly of the point.
4. Measurements of fixed physical features tend to confirm that Lt. Ives' meridian placements are too far west. Boundary Cone, a prominent peak standing near the 35th parallel 16/ is approximately 14.4 miles east of the 114° 40' meridian, as measured on the Needles U.S.G.S. map (Ex. MO-16). The same measurement on Lt. Ives' map, as accurately as can be measured, is 15.5 miles. On the other hand, the east-west distance from Boundary Cone to

16/ On page 70 of his report, Lt. Ives stated: "As we steamed away from the Mojave villages we passed a conspicuous conical peak, a few miles east of the river, which stands almost upon the 35th parallel, opposite the initial point of the California boundary."

the light colored hachuring westerly of Camp 45 on Lt. Ives' map, is virtually the same as the distance from Boundary Cone to the California bluff line near Soto Ranch as measured on the Needles U.S.G.S. map.

5. In placing the transparency of Lt. Ives' map over a modern U.S.G.S. map (Exs. MO-16, MO-17), a number of physical and other features are shown to match up reasonably close. Among these features are the deep canyons to the north and south, the Bill Williams River, the general outline of the Mojave Valley alluvial plain, Boundary Cone, Sitgreaves Pass, the California-Nevada boundary line and the lines of latitude. By positioning the maps so as to match up these features, the lines of longitude do not match, the lines on Lt. Ives' map being in excess of one mile too far to the west. Such positioning also shows the river to be flowing near the California bluff line and through the subject lands.

To summarize the analysis of Lt. Ives' map it is concluded that his lines of longitude are, on the average, one minute and fifteen seconds (1' 15"), or approximately one and two-tenths (1.2) miles too far to the west. Lt. Ives' longitude reading at Camp 45 should have been 114° 39' 33" W., rather than 114° 38' 18" W. ^{17/} In making this correction on his

^{17/} To illustrate this finding the Hearing Examiner plotted the position of Camp 45, (this footnote continued on next page)

map the 114° 40' line of longitude falls into the dark hachured area adjacent to Camp 45, affirming the general accuracy of the California bluff line as depicted by the line of demarcation between the dark and light hachuring. The end result is that the river as found by Lt. Ives in 1858 flowed near the California bluff line and through the subject lands.

Supporting the validity of this conclusion are the surveys made by Col. Washington, discussed above, who in 1855 as demonstrated by Mr. Johnson, found the river to be near the California bluff line at the vicinity of the northern portion of the subject lands, and by H. S. Washburn and G. W. Baker, land surveyors, who in 1855 and 1883, respectively, found the river to be near the California bluff line at the vicinity of the southern portion of the subject lands. According to the plat of survey, approved Dec. 18, 1884 (Exs. E, MO-7), the river is meandered at the corner common to sections 22, 26, and 27 of T. 10 N., R. 22 E., S.B.M. Under California's theory as pictorially demonstrated by the map and overlays in its exhibit (Ex. CA-4), the river could not have made a sharp enough curve from the north so as to make connection at the common corner as depicted by Baker (Tr. 89, 218). However, the

(footnote 17 continued from page 30) at Long. 114° 39' 33" W. and Lat. 34° 58' 44.5", on the Needles U.S.G.S. map (Ex. MO-18) by placing a red circle in Sec. 11, T. 10 N., R. 22 E., S.B.M. The measurements were made by the Hearing Examiner, at a scale of one second of longitude equals 83 feet and one second of latitude equals 101.4 feet. The measurements and calculations made in numbered items 2, 3 and 4 above were also made by the Hearing Examiner.

contour of the land, as shown on U.S.G.S. maps and aerial photos (Exs. 11, BU-2, and N), as interpreted by Mr. Johnson and Mr. McEwan, above, would indicate no impediment existed to such a meander.

In further support is the map (Ex. X-2) prepared by Lt. Bergland, a U.S. Army topographic engineer, as the result of his survey of the river for navigational and irrigation purposes in 1875. It shows a fairly sharp loop in the river extending southwesterly from the point of intersection of the California-Nevada boundary line and the 35th parallel. The westerly extension of the river into the area of the subject lands is roughly two miles, slightly less than the distance westward as shown on Lt. Ives' map.

Much was said about the 1869 survey of the Camp Mojave Hay and Wood Reserve, conducted by Lt. George Wheeler, Corps of Engineers (Ex. 5). The north-south extension of the reserve parallels the subject lands, and the east-west extension, according to the distances recorded by Lt. Wheeler, encompasses the subject lands, with the western boundary of the reserve falling high on the mesa considerably west of the river bottom. However, the plat of survey shows the western boundary to border the river. Since it is obvious that the survey is in error, either in the east-west distances shown or in the depiction of the river, it is of questionable value in determining the position of the river at that time. The written report of the survey (Ex. 6) does state that the reserve is in Arizona and that the western boundary is marked by posts established on the left [eastern] bank of the river. This, together with the large acreage stated

to be involved (9114.81 acres), is at least indicative that most of the river bottom land was in Arizona with the river flowing near the California bluffs. The reserve was resurveyed by Sidney Blout in 1931, * and according to his field notes (Ex. 4) and plat (Ex. P) he shortened the east-west distances so as to allow room for the river to have flowed between the western boundary and the California bluff line. His action is explained in the field notes, thusly:

The preceding retracement of the south and north lines of the Bdy. of the old Hay and Wood Reservation, in accordance with the calls of the original survey, locates points for Cors. Nos. 3 and 4 of said reserv. on the west side of the Colo. River on land so high as to preclude all possibility of the river having flowed to the west thereof in the year 1869. Therefore, since the record shows these corners as having been established on the east bank of the river, a discrepancy of considerable moment must exist in the record. This discrepancy seems to admit of explanation only by assuming that serious errors were made in the measurement of the reservation boundary.

The Colo. River, at the time the reservation was surveyed in 1869, as nearly as can be determined at the present time from observations on the ground, and from testimony of old Indian inhabitants of the valley, occupied a position in the west side of the valley with its west bank near the foot of the mesa, which is well defined at the present time.

The intervening land, between the foot of the mesa and the present west edge of the water surface, is so low as to be subject to overflow of from two to five feet during the annual high water periods. These repeated inundations of the land, extending over a period of nearly 58 years since survey of the reservation, have destroyed all lines of demarkation of the east bank of the river as it existed in 1869, leaving nothing in the way of topographic evidence from which to determine the actual width of the stream at the time of original survey of the Hay and Wood Reserv. Bdy. Therefore, the

* The Blout survey was run in 1928; the plat was accepted in 1931.

points for Cors. Nos. 3 and 4 of said reservation are restored by reference to the official map of same, which shows Cor. No. 3 to be approximately 30 chs. easterly, and Cor. No. 4 to be approximately 22 chs. easterly, from the west bank of the river.

Using the Blout field notes, Mr. James H. Jones, Jr., an engineer technician employed by the Bureau of Indian Affairs, Phoenix, Arizona, plotted the river on a sketch map (Ex. MO-25), to pictorially show Mr. Blout's conclusion as to how the river was positioned in 1869, in relation to the subject lands. It shows the river flowing along the westerly side of the subject lands and, according to Mr. Jones, that is how Mr. Blout would have depicted it (Tr. 1151).

In conclusion on this issue, based upon the testimony and evidence discussed above, it is found that as of 1855 and 1858, the Colorado River flowed near the California bluff line through the westerly portion of the subject lands. There being no probative evidence presented to show that the position of the river was any different in 1850, the same finding is made with respect to the critical date of September 28, 1850 (Tr. 1491). Finally, it is found that the subject land was not in esse in the State of California on September 28, 1850. 18/

18/ The State of California was admitted to the Union on September 9, 1850, and its boundary through townships 10 and 11 N., R. 22 E., S.B.M., is defined in its constitution as follows:

"* * * thence running in a straight line in a southeasterly direction to the river Colorado, at a point where it intersects the 35th degree of north latitude; thence down the middle of the channel of said river * * *". (Ex. 0)

SECOND ISSUEWas the Land Swamp and Overflow, as
Contemplated by the Swamp Land Act,
on September 28, 1850?

While the ultimate findings under the first issue resolves the matter, adverse to California's application, the evidence presented on the second issue will nevertheless be discussed.

It is uncontradicted that the present character of the subject land is not swamp and overflowed. With the passage of time and the changes made by man to the river system, was its character different in 1850?

California's contention that the land was swamp and overflowed in 1850 is centered upon the premise that since lands immediately to the north and to the south of the subject lands, all similar in character at the present time, were patented to California as swamp and overflowed lands, the lands in between must similarly qualify for patent. This position was advanced through the testimony of Robert G. Nadey, 19/ Supervisor of the Litigation and Research Unit, Public Lands Management Section, State of California, who prepared an exhibit containing a map with overlays (Ex. CA-4) to illustrate his position.

19/ At the time of the first hearing, Mr. Nadey was Assistant Civil Engineer for the California State Lands Commission for whom he worked for over twenty-five years. His duties have revolved around the determination of land titles, land and river boundaries, and making investigations dealing with land management, including survey and hydrographic engineering. His educational background includes three years of college majoring in geology and mining and petroleum engineering (Tr. 6-8, 668-669).

The base map of the exhibit is comprised of Baker's survey of T. 11 N., R. 21 E. (Ex. J), and his survey of the south half of T. 10 N., R. 22 E. (Ex. E), made in August and September 1883. As shown in green on the exhibit, certain lands adjoining the Colorado River in both townships were returned by Baker as swamp and overflowed and as a result were patented to California on April 24, 1896. These are the earliest sectional surveys made of the immediate area, 33 years after passage of the Swamp Land Act, and it is not definitely known whether Baker's classification was based on conditions as he found them or on conditions he determined to have existed in 1850. Both Mr. Nadey and Mr. Johnson were of the opinion that the classification was made on the basis of conditions found to exist at the time of survey (Tr. 98, 455).

The first overlay to the base map of exhibit CA-4 shows the re-survey of T. 11 N., R. 21 E. (Ex. H), and a new survey of T. 11 N., R. 22 E. (Ex. L), made by T. D. Daley and H. M. Muscott in March 1921. These surveys show the river to be approximately one-half mile east of where Baker found it, and they show the second standard parallel or township line to be approximately 30 chains or 1,980 feet south of that shown by Baker. The lands contained within these eastward and southward projections from Baker's survey, as shown in green on the overlay, were returned as swamp and overflowed, and patented to California on January 24, 1926.

The same overlay shows the sectional survey of the north half of T. 10 N., R. 22 E. (Ex. F), made by F. W. Chapin and F. R. Ihrie in February 1922. The section lines were not carried to the Colorado River

because the surveyors encountered a body of water designated on their plat as Lake Tapio, with the comment: "This lake is not permanent so was not meandered". According to their field notes (Ex. 2), the lake "has existed for several years . . . and is filled with a dense growth of rushes and dead timber which is very difficult to penetrate . . . Old settlers state that the area covered by Lake Tapio was at one time above water. The dead timber, some of which still stands, bears witness to the accuracy of this statement. After a number of years perhaps it will again be above water and fit for agricultural purposes through the action of natural agencies. It might also be possible through flood control and drainage to reclaim this land, although the expense would probably be too great for the small area involved to make it worth while for many years to come anyway".

This area designated by Chapin and Ihrle as Lake Tapio is generally the same area as now comprises the subject lands as is shown in red coloring on the second overlay of California's exhibit. This overlay shows the survey made by T. Vander Meer in March 1941 (Ex. G), which is the first sectional survey made of the subject lands. No lands were designated as swamp and overflowed, nor was any evidence presented to indicate whether Vander Meer made an effort to determine conditions as they existed in 1850. The second overlay also contains the additional survey of T. 11 N., Rs. 21 and 22 E. (Ex. K), made by R. F. Wilson in March 1933. According to that survey, Wilson found the river to be easterly of the 1921 position shown by Daley and Muscott, and the lands

falling between the river positions were returned by Wilson as swamp and overflowed and patented to California on March 27, 1940. 20/

Mr. Nadey also prepared (or had prepared under his supervision) an exhibit showing swampland applications made by individuals in 1909, covering the area of the subject lands (Ex. M, with overlay). According to Mr. Nadey, it was the practice in those days for individuals to file applications with the county surveyor for lands which they apparently felt were swamp and overflowed. Mr. Nadey was not sure whether the applications were accompanied with affidavits attesting to the character of the land (Tr. 873-875). It was then the duty of the county surveyor to survey and identify the lands and submit his field notes to the State Surveyor General for approval. Again, Mr. Nadey was not certain as to whether the county surveyor made a determination as to the character of the lands (Tr. 869, 876). As to the 1909 applications listed on the exhibit, the State Surveyor General, finding that the lands had not been surveyed, requested the United States General Land Office to survey the lands to determine whether the state had title. That request resulted in the 1910-1914 correspondence (Ex. O; Tr. 867), the last letter of which is dated June 24, 1914, and purports to reject the State's application.

Based upon the surveys and past actions taken, as demonstrated by the exhibits discussed above, his observation of the similarity in

20/ It is interesting to note that additional swamplands were granted with each movement of the river to the east. This tends to confirm that the swampland designations were made by the surveyors according to conditions they found existing at the time, without reference to conditions existing in 1850.

character between the subject lands and those previously patented as swamp and overflowed and the testimony given by Col. Turner, it is Mr. Nadey's opinion that the subject lands (except for 310.64 acres as listed on p. 12 of Hearing Examiner Wood's decision of March 15, 1967) should be classified as swamp and overflowed (Tr. 510).

Twenty test borings revealing subsurface conditions in the subject lands were made by the U.S. Geological Survey. A record was made of the test hole logs (Ex. MO-33), and the holes, which range from 15.5 to 42 feet deep, were plotted on a map (Ex. MO-33a). Mr. Kunkel, who personally drilled seventeen of the holes, testified that the logs indicate alternating beds of silt, clay, silty clay, sand and gravel to the full depth (Tr. 1234-1235). The silt and clay deposits were all reddish, red-brown and yellow in color, indicating to Mr. Kunkel that swampy conditions never existed within the depths examined. 21/ He stated that swampy conditions would be indicated by darker colors, such as blue, green, black and gray. He explained that the colorization results from the form in which the deposited iron in the clays is found. Iron in ferric or oxidized form produces the lighter coloring such as found in the test holes, and iron in a ferrous or reduced oxygen form produces the darker colors. Mr. Kunkel had laboratory tests made on a sample of clay from

21/ Mr. Kunkel was of the opinion that the subject lands had aggraded approximately 18 feet by depositions made by the river since 1850 (Tr. 1270), whereas Col. Turner estimated that the total aggradation could possibly be as much as 29 feet (Tr. 175, 950).

one of the test holes and it was found to contain only ferric iron. He stated that this type of colorization and iron form test provides an immutable criterion for determining whether or not land is swampland (Tr. 1233-1238).

Mr. Kunkel went on to give the opinion that: "based on the geology and stratigraphy, and the scientific examination of the deposits beneath the flood plain of the Colorado River, there is no evidence that leads me to believe that the deposits at any time within the historic period--or for that matter for the last several thousand years--have been swamp deposits" (Tr. 1262).

Mr. Ali Shahroody, 22/ a consulting engineer employed by California, agreed that the process of reduction from the ferric to ferrous condition and the resulting changes in colorization usually occurs in a swampy condition. But he said that to complete the process would take several years and it would be necessary to have an environment where silty clay material is continuously introduced in a slow-going water area. In his opinion, water from the Colorado River would move in and out of the subject lands with such regularity as to flush out acid development

22/ Since graduation from college, Mr. Shahroody has been employed by the engineering firm of Thomas M. Stetson, where his work involves hydrologic analysis of basin, surface and subsurface flow, ground water, evaporative transportation, basin sedimentation, basin management and surface transportation of water. He received a bachelor's degree in general agriculture in 1963, and master's degrees in irrigation science, and hydraulics and hydrology, from the University of California.

and retard the process of reduction from ferric to ferrous. He stated that he does not envision a continuous swamp or impoundment of water in the location of Lake Tapio, as shown on exhibit P (Tr. 1523-1524).

Mr. Ray A. Ringer, 23/ a soil scientist employed by the Bureau of Indian Affairs since 1956, made a soil survey of the subject lands in November 1968. He made 117 sample borings, five feet deep, at points as plotted on a topographic map (Ex. MO-20). According to his findings, most of the area is covered by a layer of silty clays over sands. He found the clays to be dark brown in color, indicating a ferric iron condition. He found no blue, black or green colors which would indicate a reduced ferrous or swamp condition of the soil. From his study, he concluded that the land is not swamp (Tr. 1179-1183). His soil survey also revealed that the Colorado River has occupied a channel hard against the west mesa of the subject land (Ex. MO-27). He stated that the channel has been abandoned and filled with silty clay, and is deeply incised along the westernmost edge, feathering out or tapering upward going to the east. The deeply incised part occupied an area 400 feet wide from east to west. Going to the east, the depth of the silty clay over sand decreases and the deposit of clay has preserved the old river channel (Tr. 1183-1184).

Mr. Kunkel also testified that his study of the historical record revealed no evidence of swamp conditions to have existed. He first discussed his review of Lt. Ives' report, as follows:

23/ Mr. Ringer is a graduate of Oklahoma State University, having a degree in agronomy with a major in soils. He has worked primarily in Arizona, making soil surveys along the Gila, Salt and primarily the Colorado Rivers.

Well, let's see. I read the report by Lieutenant Ives that described his travel from the mouth of the Colorado River up to the Black Canyon through the area. I read that very carefully, trying to see if there was anything any place that he referred to swamps or blue clay, or his discussions of agriculture, how they applied, how this could be interpreted to apply to the area, or whether there was even any implication by anything that he wrote about from which one could infer a swamp.

And the several things in his report I thought extremely interesting in this regard: one, he was a very observant person, and he had a very good staff of professional people with him that were trained in these observations, and my--there are two references to black colored deposits in his report.

One he describes coming up the channel at the mouth of the river where his boat scraped the bottom, and he did describe the blue colored deposits or silt rising and coloring the water where his boat was.

And on one other occasion he described where the--I believe it was the Cocopah Indian Reservation where women smeared blue clay on their hair, which they--the clay was derived from the banks along the Colorado River.

These are the only two occurrences to the color, the blue color of the deposits. And both of those occurrences were considerably to the south of the Needles.

He described the striking--in his own words--the striking contrast between the flood plain and the barren mesa land. He also indicated that Indian agriculture and occupancy was confined . . . exclusively to the flood plain of the Colorado River. He also told that one of the ways in which he knew that he was going to get stuck when he went up the river with his boat would be that he would see the Indians lining the bank, watching, and he knew that this was a clue and he never could figure out whether they were watching because they knew he was going to get stuck, or because he was approaching a village.

But where the river widened out in places, like the area under consideration, these is where the Indian villages were, and as he approached those, he knew that the water would be shallower, and his probability of grounding would be much greater.

* * *

In the Mojave Valley in particular he described how he traded with the Indians, how they raised squash, melons, and considerable amounts of grains, and that they were well fed.

He also indicated that the overflow condition was a natural occurrence. It was not disaster to the Indians. On those few occasions when the river did not overflow, it was--that was disastrous to them, for the simple reason that they were unable to grow the crops that year, and many of them, because they did not store large quantities of food, perished in the season when food wasn't available.

Now, all of these--none of these conditions that he described to me indicated that swamps, if they existed at all, were widespread, and he made no reference to swamps whatsoever in his observations (Tr. 1243-1247).

Concerning the swamplands returned in the two Baker surveys of 1844, Mr. Kunkel stated that his test holes drilled on those lands do not support a finding of swamp conditions, and he doesn't know what criteria Baker used in his determinations (Tr. 1281). (The answer may lie in Baker's field notes of the survey of T. 10 N. (Ex. 16), where, under "General Description" he said:

"[There is] some bottom land along the Colorado River . . . These bottom lands are subject to overflow." (Emphasis added).

Presumably these are the lands he returned as "swamp lands - unfit for cultivation - within the meaning of the act . . .")

Mr. Kunkel next referred to the U.S.G.S. map of 1902-03 (Ex. U) which he said shows no lake or swamp deposits (Tr. 1281-1282). He then referred to the Chapin and Ihrie plat of survey (Ex. F) which shows for the first time the existence of Lake Tapio, which from the surveyor's

notes, he felt was of recent origin (Tr. 1282). The lake is also shown on Blout's survey of 1928 (Ex. P). The last map in point of time which he discussed is the Vander Meer survey plat of 1941 (Ex. G) which he said shows the existence of several sloughs, one of which in part approximates a channel tight against the bluffs.

In this regard, two other maps should also be mentioned. The U.S.C. & G.S. map of 1893-99 (Ex. V) identifies or describes many physical features found along the river in the general area of the subject lands, such as bluffs, gulches, washes, lakes and ground cover. At the position of the subject lands, shown to be in the valley bottom, appear the word "Indians" in two different places. No mention is made of swamps, nor is a lake or other water indicated at the subject lands. Similarly, there is no mention of swamps or lakes on Lt. Wheeler's map of 1869 (Ex. 5). The river bottom is described as "rich bottom land", "covered with a thick growth of [unreadable]", "cottonwoods, mesquite and willows", and in several places with the word "rancheria".

From the evidence presented it can only be concluded that the subject lands were not of a swampy character as of September 28, 1850. There is no probative evidence to the contrary. Whether they were "overflowed", so as to qualify as "swamp and overflowed" under the Act, requires further discussion.

The presence of standing water on the subject lands was first reported in Chapin and Ihrie's survey made in 1923. 24/ It was designated

24/ Evidence earlier in point of time, discussed previously, has of course indicated the presence of water on the lands prior
(this footnote continued on next page)

on their plat (Ex. F) as Lake Tapio, with the comment: "This lake is not permanent so was not meandered". As noted above, the surveyors considered it of recent origin. Its existence was also reported by Blout in 1928, shown on his survey plat (Ex. P). A survey map made by the Los Angeles Metropolitan Water District in 1929 (Ex. CA-32) does not show the lake, whereas one made in 1934 (Ex. CA-31) does show the lake. It does not appear on an aerial photograph made on May 17, 1932 (Ex. BU-9), a date when the river's flow was reported to be 52,200 c.f.s.

Mr. McEwan described the lake as a backwater condition caused by outwash from Paiute Wash (near the southern end of the subject lands), which carries heavy detrital material into the Colorado River creating a grade control, holding water back in Lake Tapio. He said the grade control is temporary, depending upon the size and frequency of the outwashes and, as the material is eventually distributed down river, the lake above it disappears (Tr. 1498-1499). There was general agreement among the witnesses that this damming effect caused the existence of Lake Tapio (Tr. 178, 607-608, 621, 1340, 1521-1522).

As to the frequency of overflow on the subject lands during the historic period, the evidence presented does not provide a ready answer. The existence of Lake Tapio was first reported in 1923, and again in 1928 and 1934. It was not present in 1929 or 1932. None of the earlier maps or reports indicate its existence. Col. Turner said he

(footnote 24 continued from page 44) to 1923, either as periodic flooding of the valley or the main channel of the river.

has no knowledge that the lake existed as such in 1850 (Tr. 948). However, in his opinion, the area of the lake probably was a low area in 1850, and would be one of the first areas to flood when the river started overflowing its banks. He estimated that overflowing would take place there when the river flow reached 20,000 c.f.s. (Ex. U-Overlay 1), which occurred in all but the dry years. In the average years, the flooding began in the first part of May and continued to about the middle of July. Sheet flooding of the general valley floor occurred each average year, commencing at a flow of 60,000 c.f.s. (Ex. U-Overlay 2), and would last for four or five days (Tr. 136, 147, 233-234). Col. Turner did not identify which years were dry, normal, or wet.

Mr. Shahroody stated that the ground surface gradient of the valley is from the northeast to the southwest (Tr. 1519), so whenever overtopping of the river banks occurred there is a high probability that the subject lands would be flooded. He said there would be years, hydrologically called dry years, when the area could possibly be used for agriculture (Tr. 1531, 1537). He did not identify any such years.

Mr. McEwan disagreed with Col. Turner's evaluation of when flooding would occur. He said that the river had the ability to degrade its channel faster than the rise of the water surface, giving it a large-capacity channel which would carry a flood without the frequency of overbank flow as described by Col. Turner (Tr. 720). To illustrate this, he referred to the aerial photograph flown on May 17, 1932 (Ex. BU-9), a date when the flow was 52,200 c.f.s., which shows the banks of the river containing the flood waters and not overflowing on the subject lands

(Tr. 1504-1505). He also said that sheet flooding occurred only during major floods which, according to published records, existed only in the years 1862, 1867, 1878, 1884, 1907, 1909, 1912, 1914, 1920 and 1931. He pointed out that between 1884 and 1907, a period of 23 years, a major flood did not occur (Tr. 720-721).

There is evidence that the early day Mojave Indians conducted agricultural and other activities within the valley. Apparently these activities were compatible with the overflow characteristics of the river. Mr. Kunkel testified above about the account of the agricultural activities observed by Lt. Ives in 1858. Mr. Sherman Graves, born on the reservation and presently 75 years old, testified that his ancestors lived in the vicinity of the subject lands and as a child he observed the growing of corn, wheat, watermelons and other foods on the land (Tr. 1094-1096). Mr. Llewellyn Barracman, also born on the reservation, lived his first nine years on the reservation with his grandmother. From her and through early schooling, he learned of the traditions, customs and history of his people. He testified that he was familiar with the subject lands (Tr. 1041) and how they were used by his ancestors. He said that each family would have a home on the mesa and another one in the bottom land, the latter being used during the planting and growing season after the overflow waters subsided. He described their method of agriculture, thusly:

The method--corn, watermelon, wheat, pumpkin, are about the four or five plants that are used by the Mojaves. And the method of planting was--there was no irrigation, but just you'd go along with a flat area; holes of a 12-inch diameter is dug and the seed is planted. And

the next plant would, I would say, about two to three feet apart--whatever plant is planted, whether it's pumpkin--which takes a great area--well, that would call for about at least three feet apart. Watermelon same thing.

Corn would be a little different; close together in holes. And this is the method they used. And digging a well in the middle of the planted area, water would be carried by ollas that's made by the Tribe, again, from material found along the mesa to make into potteries or cups or whatever it would be--utensils that they used.

He said that in those years when the area did not overflow, the people would live on stored food. He had no personal knowledge of the frequency that the overflows occurred (Tr. 1044-1045, 1065-1067).

Mr. Barracman also testified about a map he had helped prepare (Ex. MO-15) which provides a picture of historic uses made of the Mojave homeland. He identified the area of the subject lands and stated that it was historically used for dwellings, for planting purposes, and as a meeting place for foot races and cultural purposes (Tr. 1051).

Mrs. Frances Stillman, also a member of the tribe born on the reservation, generally corroborated the testimony covering the native agricultural practices in the area of the subject lands.

Agricultural practices are also mentioned in other documents. The U.S. Coast and Geodetic Survey report of 1900 (Ex. CA-30), in discussing the area near the 35th parallel, states:

The alluvial bottoms are from 2 to 3 miles wide, the soil being a sandy loam rising several feet above the river, but generally submerged during the time of high water. The growth is chiefly willow, interspersed with cottonwood and mesquite. Some of the land is cultivated by Indians; there are also a few ranches owned by whites.

A series of Bureau of Indian Affairs documents (Exs. CA-17 through CA-29) relate, among other things, the history of artificial irrigation works attempted on the reservation, on the east side of the river, during the period generally from 1891 to 1914. These attempts ended in failure with the levees being washed away by floods. One report (Ex. CA-17) described the Indian agriculture as follows:

Almost every year, prior to the construction of Boulder Dam, the Colorado River overflowed its banks in late spring or early summer. The Mojave Valley Indians, like others along the river, raised small quantities of corn, beans, melons and pumpkins on the overflowed lands. These crops matured quickly and little or no work was required by the Indians to produce them. The principal food supply of the Mojave Valley Indians, however, was the bean of the mesquite tree. In years when the Colorado failed to overflow the valley lands, this was almost the only supply of food available for the Indians. On occasions, this crop also failed and at such times the Indians faced starvation.

The annual report of the Commissioner of Indian Affairs for 1869 (Ex. CA-21), contains the following statement made by the reservation superintendent:

. . . I learned there are about two thousand of these Indians in the Mojave Valley, and from what I saw, judge that they had planted much more extensively, in proportion to their numbers, than those living on the reservation. I found they cut wood and sold it to the steamboats, and to my inquiries of Irataba why his people did not do the same, was informed by him that their agent discouraged it, saying he wanted them to plant. I also learned that the Mojave Valley Indians had shared the wheat they raised with their brethren on the reservation. As the Colorado River did not overflow its banks during the last spring, as it usually does, the amount produced by all the river Indians has been very small, and will not sustain them until another harvest; . . .

A good description of the Mojave mode of agriculture is contained in the Commissioner's annual report of 1906 (Ex. CA-25), where it is stated:

The Mohave Indians usually live in settlements of a few families, and have houses built of sticks and mud. With roofs made of arrow weed covered with dirt. These houses are located in the bottoms along the Colorado River and have to be abandoned in May or June of each year because of the overflow. When the river begins to rise and shows signs of overflowing the bottom lands, the Indians, preparatory to leaving their homes, place such of their personal effects as they do not wish to take with them upon the tops of their houses, clear and make ready for planting a small patch of ground near their houses, which they call their ranch. They do not leave their houses until the water begins to come into them, for the overflow is not sufficient every year to drive them away.

When the water recedes, the Indians go back to their homes and plant their crops in holes dug in the mud about a foot deep. They cover the seeds lightly, and when the plants start to grow they gradually put more soil in the holes until they are filled. They plant their corn, watermelons, muskmelons, pumpkins, squashes, and beans the last week in July, when the temperature ranges from 110° to 120° or more in the shade. The plants grow very rapidly. Corn is ready for the table in five weeks from the time the seed is planted, but a little longer time is needed for the other vegetables to mature.

The mesquite bean is a staple article of subsistence, and when the river does not overflow, furnished a large part of the food for the Mohave and his mule.

The storehouse of the Mohave is a large basket made of willow or arrow weed and placed upon a platform about 4 feet high. In this he stores his melons, squash, pumpkins, corn, and mesquite beans.

From the above evidence relating to frequency of overflow and Tribal agricultural pursuits, it is found and concluded that (1) in those years in the historic period when the channel of the river was to the east

of the subject lands, said lands were overflowed by the flood waters of the river during May and June of the normal years, (2) such overflow was necessary for and promoted the success of traditional Tribal communal agriculture conducted on said lands, and (3) such overflow, uncontrolled by artificial reclamation, would have rendered the lands unfit for cultivation for Caucasian-type agriculture (Tr. 1334), as contemplated by the Swamp Land Act.

SUMMARY OF FINDINGS AND CONCLUSIONS

1. On September 28, 1850, the main channel of the Colorado River occupied a position near the California bluff line on the westerly portion of the subject lands.
2. On September 28, 1850, the subject land was not in esse in the State of California.
3. During the historic period the subject lands have not been of a swampy character.
4. In those years in the historic period when the channel of the Colorado River was to the east of the subject lands, said lands were overflowed by the flood waters of the river during May and June of the normal years.
5. Such overflow was necessary for and promoted the success of traditional Tribal communal agriculture conducted on said lands.
6. Such overflow, uncontrolled by artificial reclamation, would have rendered the lands unfit for cultivation for

Caucasian-type agriculture, as contemplated by the Swamp Land Act.

7. On September 28, 1850, because of the position of the main channel of the river, the subject lands were not swamp and overflowed as contemplated by the Swamp Land Act.

ORDER

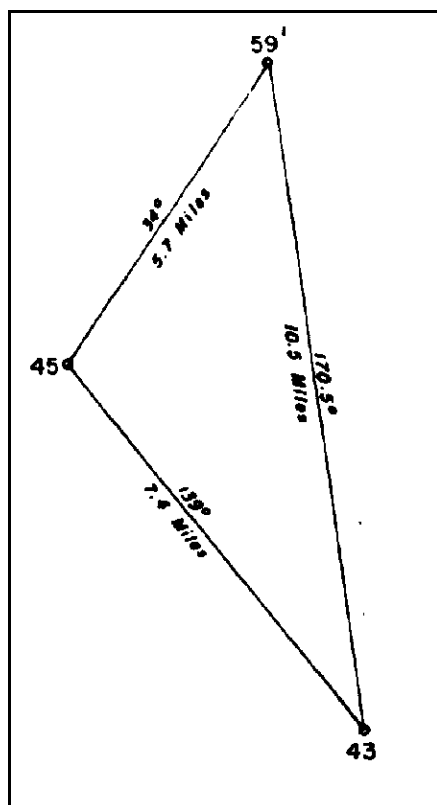
The application is rejected.

/s/
L. K. Luoma
Hearing Examiner

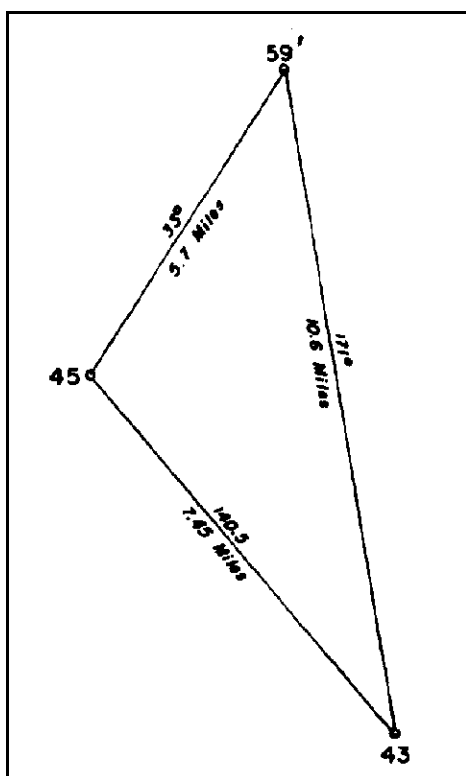
Dated August 3, 1971

Editor's Note: It may be necessary to switch to graphics mode to see illustrations.

APPENDIX "A"



Camps as plotted on Lt. Ives map (Ex. X-3)

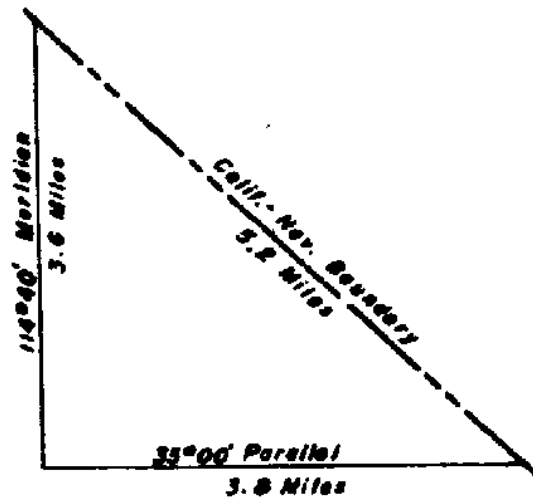


Camps as plotted on U.S.G.S. map (Ex. A) according to latitude and longitude determinations made by Lt. Ives.

APPENDIX "B"

Triangle formed by lines of the California-Nevada boundary diagonal, the 35° 00' parallel and the 114° Meridian, with approximate length of each leg.

LT. IVES MAP (Ex. X-3)



U.S.G.S. MAP (Ex. A)



